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| 09/851,164 | 05/09/2001 | Hirokazu Kondo | Q63442 | 2516 |

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EXAMINER

THOMPSON, JAMES A

| ART UNIT | PAPER NUMBER |
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2624

DATE MAILED: 11/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/851,164

Applicant(s)

KONDO, HIROKAZU

Examiner

James A Thompson

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☒ Claim(s) 15 and 37-44 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/210,392.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other:

DETAILED ACTION

Priority

1. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 119 (a)-(d) as follows:

An application in which the benefits of an earlier application are desired must contain a specific reference to the prior application(s) in the first sentence of the specification of in an application data sheet (37 CFR 1.78(a)(2) and (a)(5)). The specific reference to any prior nonprovisional application must include the relationship (i.e., continuation, divisional, or continuation-in-part) between the applications except when the reference is to a prior application of a CPA assigned the same application number.

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/210,392, filed on December 15, 1997.

Specification

3. The abstract of the disclosure is objected to because the last sentence "The difference between the sheet color according to the standard printing profile and the sheet color to be actually used for printing" is an incomplete sentence and confusing. Correction is required. See MPEP § 608.01(b).

4. The disclosure is objected to because of the following informalities:

On page 12, lines 24 and 25, reference is made to "125 combinations" when there are clearly 25 combinations as further stated on page 12, lines 16.

Appropriate correction is required.

Claim Objections

5. Claim 15 is objected to because of the following informalities:

The word "colorimetric" should be replaced with "colorimeter" on page 25, line 19 since the device known as a colorimeter is clearly intended.

Appropriate correction is required.

6. Claims 37-44 are objected to because of the following informalities:

The phrase "The method of claim" should be replaced with "The apparatus of claim" in said claims. Said claims are dependent upon claims which claim an apparatus, not a method as currently stated.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 13-17 and 24-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The applicant uses functional language in said claims without corresponding means for performing the functions described. The use of functional language in said claims does not establish definite boundaries defining the subject matter. Said functional language in said claims is not used in association with an element, ingredient or step of a process to define a particular capability or purpose that is served by the recited element, ingredient or step. Applicant is advised to refer to MPEP § 2173.05 (g).

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1-14, 16-25 and 27-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Hidaka (US Patent 6,320,980 B1). The embodiment disclosed by Hidaka that is used for all 102(e) rejections is the first embodiment disclosed in the specification under the heading "First Embodiment" with its subsequent modification disclosed in the specification under the heading "Modification of the First Embodiment" further modified such that two printers are used in the color correction process. Said further modification to the modified first embodiment is disclosed on column 12, lines 61-65 of Hidaka.

Regarding claim 1, Hidaka discloses converting device-dependent image data to first colorimetric data with color converting means given to a standard print medium (column 6, lines 11-16 of Hidaka). A scanner or other input device inputs the device-dependent image data which is then converted into a device-independent color space. Hidaka further discloses converting said first colorimetric data to second colorimetric data (column 6, lines 21-25 of Hidaka) with color correcting means to correct the difference between the color of a desired print medium and the color of said standard print medium (column 6, lines 42-51 of Hidaka). Hidaka further discloses producing a proof on which the difference between the color of a desired print medium and the color of said standard print medium has been corrected (column 6, lines 43-48 of Hidaka). Hidaka teaches displaying the color data on two media based on their colorimetric data and visually observing the media in order to correct the color (column 6, lines 51-55 of Hidaka). Said proof is produced on a proof medium with an image output device based on said second colorimetric data (column 6, lines 33-35 and lines 43-46 of Hidaka). Hidaka further discloses a color correcting means comprising one-dimensional lookup

tables (column 4, lines 35-40 of Hidaka). Said lookup tables are used to convert said first colorimetric data to said second colorimetric data (column 6, lines 17-20 of Hidaka). Hidaka specifically stores factors that are used to multiply said first colorimetric data values with said second colorimetric data values. This is analogous to using a lookup table for said conversion since storing said factors requires just as much effort as storing said second colorimetric values and all that is required to obtain said second colorimetric values is a simple multiplication operation whereby said stored factors are multiplied by said first colorimetric data values.

Regarding claim 2, Hidaka discloses converting device-dependent image data, which have been converted in gradation with respect to each color in order to match desired printing conditions by gradation converting means, to first colorimetric data with color converting means corresponding to standard printing conditions given to a standard print medium (column 8, lines 4-8 of Hidaka). Hidaka discloses image patches displayed in gradation. This therefore requires the conversion of said image data to said first colorimetric data in gradation with respect to each color. The argument concerning the step of converting said first colorimetric data to second colorimetric data as applied to claim 1 above is incorporated herein. Furthermore, the argument concerning the step of producing a proof as applied to claim 1 above is incorporated herein.

Regarding claim 7, the arguments applied to claim 1 are incorporated herein. Furthermore, Hidaka discloses the use of an apparatus for performing the steps of the method of claim 1 (figure 5 of Hidaka).

Regarding claim 8, the arguments applied to claim 2 are incorporated herein. Furthermore, Hidaka discloses the use of an apparatus for performing the steps of the method of claim 2 (figure 5 of Hidaka). The "scanner RGB \rightarrow XYZ conversion unit 1" (figure 5 (301) of Hidaka) acts as a gradation converting means for converting the gradation of device-dependent image data (column 8, lines 5-6 of Hidaka) with respect to each other in order to match the desired printing conditions.

Regarding claim 18, the arguments applied in claim 1 to the steps of converting device-dependent image data, converting first colorimetric data, and producing a proof are incorporated herein. Hidaka further discloses that the color correcting means corrects the data based on the ratios of X_{α}/X_0 , Y_{α}/Y_0 and Z_{α}/Z_0 , where X_{α} , Y_{α} and Z_{α} are second colorimetric data values for which the difference between the color of a desired print medium and the color of said standard print medium has been corrected (column 4, lines 41-43 and equation 1-(2) of Hidaka). Equation 1-(2) is a matrix equation, but said equation can also be expressed as three linear equations, specifically:

$$X_{2i} = k_a X_{1i}$$

$$Y_{2i} = k_b Y_{1i}$$

$$Z_{2i} = k_c Z_{1i}.$$

The factors k_a , k_b and k_c are therefore ratios of the second colorimetric data values (X_{2i} , Y_{2i} and Z_{2i} respectively) divided by the first colorimetric data values (X_{1i} , Y_{1i} and Z_{1i} respectively).

Regarding claim 21, the arguments applied to claim 18 are incorporated herein. Furthermore, Hidaka discloses the use of an apparatus for performing the steps of the method of claim 18 (figure 5 of Hidaka).

Regarding claims 3, 4 and 19, Hidaka discloses color correcting means (column 7, lines 60-65 of Hidaka) that is generated by outputting color patches (column 8, lines 4-5 of Hidaka), whose colorimetric values are varied in a colorimetric color space about the color of the standard print medium, with said image output device (column 8, lines 5-8 of Hidaka), and comparing the color of the desired print medium with the color patches on the proof medium (column 7, lines 63-65 of Hidaka).

Regarding claims 9, 10 and 22, the arguments applied to claims 3, 4 and 19 are incorporated herein. Furthermore, Hidaka discloses the use of an apparatus for performing the steps of the method of claims 3, 4 and 19 (figure 6 (400) of Hidaka).

Regarding claims 5, 6 and 20, Hidaka discloses that said color patches outputted on said proof medium (column 8, lines 4-5 of Hidaka) comprise color patches whose colorimetric values $L^*a^*b^*$ are varied in a CIELAB color space about the color of said standard print medium (column 8, lines 5-6 and column 9, lines 13-16 of Hidaka). An $L^*a^*b^*$ color space is commonly referred to in the art as a CIELAB color space.

Regarding claims 11, 12 and 23, the arguments applied to claims 5, 6 and 20 are incorporated herein. Furthermore, Hidaka discloses the use of an apparatus for performing the steps of the method of claims 5, 6 and 20 (figure 6 (406) of Hidaka).

Regarding claim 13, Hidaka discloses a proofer for generating a color proof on a proof print medium having color different from the color of a desired print medium (figure

6 (401) and column 6, lines 43-51 of Hidaka). Said proofer has a color adjusting function for adjusting the difference between the color of said desired print medium and the color of a standard print medium (figure 4 (400,406) and column 6, lines 46-51 of Hidaka). A proof is produced on two media and displayed so that a visual comparison can be made. The color adjusting unit adjusts parameters until the colors are matched. Hidaka further discloses a color adjusting function which comprises one-dimensional lookup tables for color conversion (column 6, lines 33-37 and column 8, lines 63-67 of Hidaka). The colors are adjusted based on stored factors and/or values, which is essentially the same as using a lookup table. Said stored factors and look up table have been discussed in the arguments applied to claim 1 and is incorporated herein.

Regarding claim 24, the arguments concerning a proofer for generating a color proof as applied to claim 13 are incorporated herein. Furthermore, the arguments relating to a color correcting means as applied to claim 18 are applied herein to the color adjusting function.

Regarding claims 14 and 25, Hidaka discloses a proofer that outputs a proof medium having color patches (column 6, lines 43-48 of Hidaka) whose colors are varied (column 8, lines 3-6 of Hidaka) and said color adjusting function adjusts color by visually comparing the color of the desired print medium with the colors of said color patches on said proof medium (column 6, lines 46-55 of Hidaka). Hidaka allows for a plurality of color patches that are varied about a color space and outputted to two print media for proofing. The color of one media is altered until the colors of both media are determined to match.

Regarding claims 16 and 27, Hidaka discloses that the color adjusting function adjusts color by a color converting means behind the printing profile. Hidaka teaches that the colors are converted before being printed on a proof medium (figure 6 (406) and column 6, lines 46-51 of Hidaka).

Regarding claims 17 and 28, Hidaka discloses a synthetic color converting means that comprises at least a printing profile, a printer profile (figure 6 (304-306), column 6, lines 17-20 and lines 26-29 of Hidaka), and a color converter for adjusting and correcting color (figure 6 (400) and column 6, lines 46-51 of Hidaka). Hidaka teaches profiles for both print media and a color converter for adjusting and correcting the color between the two media.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 29-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hidaka (US Patent 6,320,980 B1) in view of Dundas (US Patent 5,604,567).

Regarding claims 29, 33, 37 and 41, Hidaka teaches that a color of a central color patch is the same as a color of the standard print medium. Hidaka discloses the use of color patches as part of the means for correcting color. Hidaka further discloses

that one color patch will be the color of the standard print medium (column 8, lines 4-8 of Hidaka). However, Hidaka does not expressly disclose that said color of said standard print medium will be the color of a central color patch. Dundas discloses a central color patch as the target color for a printer or copier about which colors used in a color balance adjustment are distributed based on their difference from said central target color (figure 9, figure 10, and column 8, line 36 to column 9, line 25 of Dundas). Hidaka and Dundas are combinable because they are from the same field of endeavor, namely color correction. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to arrange the color patches such that the central color patch as disclosed by Dundas is the color of said standard print medium as disclosed by Hidaka. The motivation for doing so would have been for ease of presentation of the color patches being displayed and used in the color correction. Therefore, it would have been obvious to combine Dundas with Hidaka to obtain the invention as specified in claims 29, 33, 37 and 41.

Regarding claims 30, 34, 38 and 42, Hidaka discloses the use of a $L^*a^*b^*$ color space, also known as a CIELAB color space (column 9, lines 14-16 of Hidaka). However, Hidaka does not expressly disclose said color patches arranged as a^*-b^* planes in respective cross sections of different L^* -axis values. Dundas discloses an arrangement of color patches with a target color at the center of the plane, as discussed above. Dundas further discloses using said color patches for the purpose of gray balancing, thus making said central color patch a color which corresponds to a neutral gray level (figure 5 and column 6, lines 35-39 of Dundas). The L^* -axis in a CIELAB

color space is the lightness axis. Said lightness axis value corresponds to black on one end of the axis, white on the other end of the axis, and neutral gray levels in between. Said L*-axis values would correspond to said specific neutral gray level of said central color patch as disclosed by Dundas. Hidaka and Dundas are combinable because they are from the same field of endeavor, namely color correction. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to vary the colors in the a*-b* plane about a constant point on the L*-axis. The motivation for doing so would be that humans can more easily detect differences in colors if the intensity of said colors remains constant. In such an arrangement, only the difference in color needs to be considered. Having to further consider a difference in intensity would needlessly add difficulty to the color correction process. Therefore, it would have been obvious to combine Dundas with Hidaka to obtain the invention as specified in claims 30, 34, 38 and 42.

Regarding claims 31, 35, 39 and 43, Hidaka discloses the use of a L*a*b* color space, also known as a CIELAB color space (column 9, lines 14-16 of Hidaka). However, Hidaka does not expressly disclose assigning a color patch an integer value as a relative position from the central color patch according to each axis of L*a*b* for showing increment/decrement intervals of a colorimetric value. Dundas discloses the use of indicators that show increment/decrement intervals of a colorimetric value. Specifically, these indicators are "+", "++", "-" and "--" (figure 5 and column 6, lines 42-49 of Dundas). Said indicators fulfill the same essential function as the use of numerals since they show by how much and in which direction the color needs to be adjusted

along a particular axis. Dundas discloses that these patches are all different colors, since they are based on levels of variation along a colorimetric axis from the central target color (column 6, lines 42-49 of Dundas). Hidaka and Dundas are combinable because they are from the same field of endeavor, namely color correction. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to assign in an integer-like fashion a relative position from the central color patch to each non-central patch for showing increment/decrement intervals of a colorimetric value wherein no color patch is the same as the color of the desired print medium. The suggestion for doing so would have been so that the user could easily determine from a plain reading of the grid which direction along the colorimetric axis the color needs to be adjusted. Instead of having to determine said adjustment, the value of the adjustment can be read, thus reducing the chance of error. Therefore, it would have been obvious to combine Dundas with Hidaka to obtain the invention as specified in claims 31, 35, 39 and 43.

Regarding claims 32, 36, 40 and 44, Hidaka discloses the use of a $L^*a^*b^*$ color space, also known as a CIELAB color space (column 9, lines 14-16 of Hidaka). However, Hidaka does not expressly disclose that a color difference ΔE between color patches has a value between 1.5 and 2.0, inclusive. The use of color patches arranged about a central target color patch, the variation of the colors in the a^*-b^* plane about a constant point on the L^* -axis, and assigning integer relative increment/decrement positions with respect to the central color patch are discussed above. Dundas discloses for the color adjustment means both fine and coarse difference ranges between

adjacent color patches arranged about the central color patch (column 9, lines 15-20 of Dundas). This is a more general range definition than given by the applicant.

Therefore, the range claimed by the applicant falls within the bounds of what is disclosed by Dundas. Hidaka and Dundas are combinable because they are from the same field of endeavor, namely color correction. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to vary the range of color difference between color patches. The motivation for doing so would have been to be able to determine small differences in color as compared to the central color patch and as compared to the adjacent color patches. Therefore, it would have been obvious to combine Dundas with Hidaka to obtain the invention as specified in claims 32, 36, 40 and 44.

13. Claims 15 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hidaka (US Patent 6,320,980 B1) in view of Lovibond (US Patent 363,835). Hidaka discloses a proofer wherein the color adjusting function adjusts color by using colorimetric data (figure 6 (406,400,305,302) and column 6, lines 21-22 of Hidaka). Hidaka refers to the colorimetric data as "color image data," but this is essentially the same as it is data based on measurements of color light properties. Hidaka discloses the acquisition of colorimetric data from a scanner which scans the desired print medium (figure 4 (10) and column 5, lines 53-55 of Hidaka). Hidaka does not expressly disclose determining said colorimetric data by colorimetrically measuring the color of the desired print medium with a colorimeter. Lovibond discloses the determination of

colorimetric data by using a colorimeter (page 2, lines 42-46 and lines 54-62 of Lovibond). Hidaka and Lovibond are combinable since they are both from the same problem solving area, namely the measurement of color intensities. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a colorimeter for the measurement of color intensities instead of a scanner in conjunction with a computer. The suggestion for doing so would have been that a colorimeter can be used for a direct measurement of colorimetric data values. Said colorimeter would have been an alternate method of color intensity measurement. Therefore, it would have been obvious to combine Lovibond with Hidaka to obtain the invention as specified in claims 15 and 26.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Fisch, et al., US Patent 5,598,272, January 1997.

Spence, et al., US Patent 5,317,425, May 1994.

Kanno, et al., US Patent Application Publication 2002/0060796 A1, May 2002.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A Thompson whose telephone number is 703-305-6329. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K Moore can be reached on 703-308-7452. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3500.

James A. Thompson
Examiner
Art Unit 2624

JAT
October 2, 2003

A handwritten signature in black ink, appearing to read "David K Moore". The signature is fluid and cursive, with the first name "David" being more prominent than the last name "Moore".

DAVID MOORE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600